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Exhibit 2

INVENTION REPORT

origin Alliance

Title of invention: Advanced Production Test System for 3 Second Cycle Time Cellular Handset Production Line	INVENTION REPORT RECEIVED Code: NC 25577 / Patent Committee: NMP/Irving Place: Dallas / Date: 10/10/00 Signature:
THE DESCRIPTION OF THE INVENTION MUST BE ATTACHED	

Inventor's name, employee number, title and nationality: *)	Home Address: *)	Business Unit and cost centre:
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The invention becomes public on:

I am~~/ We are~~ the sole/ and original inventor~~(s)~~ of this invention.

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☒ *I /We request that the Invention Report be responded to within four (4) months.*

Date:

Signature(s) of Inventor~~(s)~~:

*) See the instructions

I have read and understood the invention described in this Invention Report

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INSTRUCTIONS FOR COMPLETING THE INVENTION REPORT

This Invention Report form is used in cases where an invention has been made by an employee of the Company. This Invention Report is confidential. Only the Patent Department may make copies of signed Invention Reports in order to request opinions or reply to the inventor(s).

The inventor completes the Invention Report and the description of the invention. The inventor does not fill in the 'Invention Report received' field. This field is filled in by the Patent Department. The Invention Report must have the names of all the inventors and their home addresses. If there is not enough space for all the names, addresses etc, please write them on a separate attachment. The first mentioned inventor is assumed to be the contact person in matters concerning the Invention Report. In the fields of office address, phone and fax, please fill in the contact person's information. Fill in the project field, if the invention is made in a project. The original Invention Report is signed by all inventors. Each page of the original Invention Report is signed by a Manager. In case it is difficult to obtain Manager's signature your Patent Department will take care of it.

It is suggested that the Invention Report and the description of the invention should be filled in as thoroughly as possible. If drawings or other kind of information cannot be attached to this form, they should be delivered separately.

The signed Invention Report is given directly to the local or business unit's Patent Department. Invention Report should also be sent by E-mail to the Patent Department. The Patent Engineer will inform the inventor of receiving the Invention Report. The Patent Engineer will obtain any expert opinions needed to properly evaluate the invention, will procure the Company's decision and inform the inventor accordingly.

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DESCRIPTION OF THE INVENTION

Please, describe your invention in the following order. You can enclose the drawings on a separate document.

1. Field and background of the invention

Cellular RF handset production/testing and statistical monitoring process. Necessarily radical departure from existing production/test methodology in order to facilitate a 3 second (or less) cycle time in production environment.

2. A summary of the invention

Advanced process for moving a Device under Test (DUT) from surface mount to completion and shipping. The process takes a raw populated PCB panel and conducts all possible solder, electrical, boundary scan and flashed self-testing.

Individuals are routed out of panels and placed into basic handset chassis on motorized and power delivering fixture carrying a fixture adapter to interface the handset. Power is required as soon as is feasible in order to leverage the DUTs ability to facilitate it's own functional certification. Without power, the "wake-up" time for handsets is extensive (5 to 15 seconds) and would otherwise have to be done numerous times throughout the process. Conditions for impending measurement can be set up on a powered handset so that measurements can be made the moment the instrument is ready to make them.

The DUT is interfaced and carried by a fixture adapter modified to mate the specific model DUT. The fixture adapter is mounted aboard a fixture, which serves as vehicular, power source, and communication suite for the adapter. The individual fixture has an addressable code, analogous in form and function to a phone number. Using RF communication the fixtures report to and are directed by a master control system which tracks progress and measurement results through each stage of assembly.

Various required measurements, tests, and software instructions are conducted wireless in a distributed fashion while the DUT advances through the process. Wireless methods include BLUETOOTH and cellular RF out of phase with production. Other distributed tests include camera verification of component placement within tolerance windows, electrical contact presence and alignments and display activation. Assembly and component verification is tested at or following the point of assembly wherever possible. All occur while the DUT continues to advance. Speed of the DUT may be regulated to allow a test completion or to "catch-up" within the process.

Where actual Baseband, RF, and transmitter power tuning/measuring are required, the DUT enters an RF shielded cell with robotic arms which "jack" into moving fixture adapters.

DUT physically moves on its dedicated fixture/fixture adapter during the production process with a goal of never halting until either packed for shipping or out of the process as a failure.

Once all standards are met, the DUT is certified. The handset routes to an off-loading, labelling and packaging cell.

Overall measurement results are monitored by an AI in near real-time. Yield and process trend patterns are identified/reacted to according to established rule-sets governing process situations and/or notification of human authorities.

3. Describe the problem which the invention overcomes

Current test/production methodology uses an ageing centralized process with very expensive ATE and fixture equipment. Because the testing is centralized in RF shielded fixtures (essentially miniature RF chambers) expensive manipulation systems (or more expensive and less reliable human operators) are required to pick and place DUTs into testers. Valuable time is wasted as the DUT is drawn into the fixture.

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interfaces are engaged, and power is applied to the DUT. When finally "awake" the DUT must be placed in the conditions for the test, and finally, a given ATE instrument may perform it's purpose, then sit idle while all other measurements and actions are performed. Once all actions are complete, the DUT is disengaged, extracted, picked and placed back to the conveyor, and sent to the next stage of production. Actual idle time by the ATE instruments is around 80%.

Current process requires automated testing of displays and user interfaces in the tester so that the speed of a keypress robot becomes the bottleneck, rather than the speed of the test plan. Testing at the point of assembly allows better process verification, and places responsibility with the process or vendor quality.

By distributing tests, actual centralized test time is limited to absolute minimum; all instruments are efficiently utilized. Because the test time and utilization rate is so much higher, fewer ATE are required. PXI technology allows ATEs to shrink from 1.6 meters tall and 800 lbs., to the size of a suitcase and manportable. PXI interface is 100 times faster than current GPIB interface. PXI instruments don't have to be pulled from production and calibrated yearly, only the communications paths need to be routinely calibrated. Warehouses full of expensive instruments do not have to be stored, transported, integrated into equally expensive racks. Logistics overhead to merely obtain and support the equipment is reduced.

Artificial Intelligence decision support systems monitor yields and production trends. This automates the monitoring process at near real-time (updates every 5 minutes). An experienced human monitoring the process with undivided attention is still unable to effectively monitor and identify a yield-threatening trend. The intricacy and range of data managed by a single tester in production is currently difficult for less than experienced engineers. The ability for many individuals to further understand and correlate the measurement values and hidden inter-relationships is exponentially complex when stages of 10 testers are aggregated, compounded yet again by correlating inter-relationships between test stages.

4. How was the problem solved earlier?

This process is unique to the cellular handset production arena. In order to use current production/test methodology to produce cellular handsets will require a 400% increase in current test equipment, manpower, and floor space.

Earlier production methodology relied on centralized testers doing long arduous test plans, and catching process problems long after they occurred. The testers were then considered suspect until proven innocent at which point the actual proximate cause could be investigated and corrected. Often after significant numbers of unsound and unreliable product was built, and subsequently a massive rework effort ensued. Testers are often relied upon to "test" quality into the system. This process verifies processes at the point of operation, and identifies problems early.

Currently, monitoring consists of technicians and supervisors standing in front of a monitor flipping through displays. If experienced, they can identify trends as they became statistically significant. Often that effort is investigative, only drawing attention after the problem becomes significant. Other methods included exhaustive SPC tools which required highly trained and competent engineers targeting specific points of data not close to real-time.

5. How does the invention improve earlier solutions? Advantages and disadvantages of the invention?

Advantages: This invention will facilitate a 3-second cycle time for cellular handsets. It will cost 1/12 of a 3 second cycle-time production line using current production test methodology, 1/4 the tester footprint, and ½ the technician requirements.

An ATE instrument can be replaced in moments by swapping it's card, reloading it's software, or for it's cost, physically replacing the ATE with a spare. By powering the DUT conditions for measurement can be met before the DUT enters measurement phase saving all set-up time and ensuring the ATE instruments have maximum utilization. Camera level assembly testing will verify the process independent of tester/adapter variability, and assign responsibility for quality issues to the proximate cause.

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Distributed measuring with remoted sensors via wireless allows the DUT to continue progressing towards completion while conducting tests/measurements, eliminates the need to manually or robotically manipulate the DUT or have physical test fixtures saving time and tremendous cost while building more handsets per time period.

An AI monitoring system automates multiple human monitoring tasks. An Artificial Neural Net (ANN) can classify a trend, recognize a pattern at 3-5 instances, hand off to an Expert System (ES) which can page or e-mail a technician, provide event statistics to support the conclusion, and even take an erratic fixture off-line. The ANN can also recognize a seemingly unrelated test value is erratic or different from values in passing DUTs, thereby interpolating an inter-dependency or trend indicator previously unrecognized. Rework is reduced drastically and more consistent monitoring is achieved.

Disadvantages: This process exists as a concept only. Although all the component technologies exist, few components/subordinate systems are off the shelf. This process is necessarily complex in its development and architecture.

Maintenance and calibration of communications is critical. Numerous distributed points of communication offer more points of failure.

Points and quantity of data are immense. AI ability to process and store data in this quantity requires robust processing and memory architecture. MCS must be a multi-tasking savant, and must also be a robust processor and memorizer.

6. Brief description of the drawings (Please enclose drawings and figures of the invention on a separate document)

Figures 1-5.

7. A more detailed description of the invention (if known at the moment)

Advanced process for moving a DUT from surface mount to completion and shipping. DUT enters the process as populated PCB. ASICs and other applicable components are boundary scanned. It is flashed software, and self-tests itself for solder connectivity and component presence. Passing all self-tests certifies that a populated PCB is a functionally sound and reliable Radio Module with high probability for successfully completing the assembly process and shipping.

The DUT is placed into a powered up state as soon as the Radio Module is fitted with a User Interface and handset exterior. It remains powered throughout the rest of production process.

Production testing including Baseband and RF tuning/alignment, software flashing, display and user interface testing, all occur in a distributed fashion. DUT physically moves on its dedicated fixture/fixture adapter during the production process with a goal of never halting until either packed for shipping or out of the process as a failure. A "dummy" calibrator fixture is introduced into the process at regular intervals which verifies, makes correction or reports deviation in communication paths between a notional DUT and all points of inspection, measurement, or tuning. Assembly and component verification is tested at the point of assembly wherever possible.

To facilitate testing while in motion, communications between DUT, ATEs, and master control system (MCS) is wireless using a moving powered fixture and production adapter which physically interfaces DUT. All communication equipment, being specific to the process not the product, resides on board the universal fixtures. Control of multiple (1 to n) fixture/fixture adapter units is via the MCS computer addressing individual fixture/fixture adapter unit unique address. MCS directs each individual DUT through the process, recording process results and monitoring progress using microwave RF above the DUT RF operating range.

ATEs consist of small PXI bus chassis and integrated computer. These chassis support function cards effectively allow "virtual instruments". Size and cost are 1/5th that of conventional ATE with no degradation in functionality.

Distributed testing occurs through short-range RF communication (BLUETOOTH) between the DUT's fixture/fixture adapter unit and remoted sensors connected to ATE. In order to ensure maximum utilization

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of ATE instruments, fixture/fixture adapter units signal approach of an impending test. As it crosses a designated phase line (ready line) the MCS directs the DUT to place itself in a required state thereby ready when it enters the sensor's range. When it crosses into effective communication range (trigger line) of remoted sensors, the measurements/actions are performed and transacted between DUT and ATE (through remoted sensors) via BLUETOOTH. Concurrently results of the transaction are communicated to MCS. At this point the ATE begins testing the next immediate DUT as it comes into range, utilized nearly 100% of the time. The completed DUT remains in the "GO" state and continues advance, or changes to a "NO-GO" state and is directed into a parallel diagnostics and rework process.

Assembly and installation process verification is monitored at the point of assembly by vision systems which confirm/deny presence and placement of components. Failures due to process instability are fixed onsite along with the affected process. Failures due to imperfect materials/components are routed to quality control.

Certain aspects of RF/Baseband tuning, alignment, and measuring still require an unbroken calibrated galvanic connection with the DUT. These actions will occur concentrated in an RF shielded cell where a robotic arm/socket assembly will interface the moving fixture/fixture adapter, move with it for the duration of measurements, and extract when complete. In unison, A DUT enters the cell, a robot interfaces the immediately preceding DUT, one preceding that is disengaged from a robot, and the fourth preceding DUT exits the cell. The RF paths are calibrated from DUT to socket on the fixture/fixture adapter, and from Jack to ATE in the robot arm/cell. The targeted testing will be dramatically shorter than current testing because the conditions for measuring (powering up, going to a specified state or channel, etc.) will be established by the DUT before it enters the cell.

Once all standards are met, the DUT is certified a functionally sound and reliable RF handset, issued an electronic serial number (ESN) and powers down, all physical interfaces to the fixture adapter disengage. The handset routes to an off-loading and packaging cell where it is extracted from the fixture adapter, laser "branded", packaged and shipped.

Yield and process statistics are monitored near real-time by an Artificial Intelligence (AI) package, which incorporates the associative knowledge of Artificial Neural Nets (ANN) with the cognitive rule-based behavior of an Expert System (ES). The AI identifies patterns or trends and reacts according to established rule-sets governing process situations. Reactions range from notification of human authorities to alarms and even process alteration.

8. Explain, how the invention is/can be implemented. Which would be the best mode of implementation?

All facets of this process need to be divided into sub-projects. Likely candidates to provide the technology, product/integration should be identified, and specifications are delivered. Individual projects develop parallel to each other. Once ready, sub-projects prototype. Once prototyped, sub-project engineers assist other projects to completion. Once complete the whole process will be integrated and certified.

A product is designated to pilot and pre-production builds commence in the Technology Development Center. Once production targets are achieved a pilot line is designated in a factory and the process is validated. The original line becomes the New Product Integration Area line.

Production begins an orderly transition to the new process, recycling any useable equipment from the legacy process along the way.

9. Explain how we can recognise if a competitor is using the same product/feature?

The components of this process will be delegated to technology providers/integrators. Legal agreements will be such that we know if areas of this technology are being requested by competitors. If enough areas of this process are concurrently sought it should infer likely use by a competitor.

Currently few technology providers or businesses have existing systems which we can buy off the shelf. For this reason we are required to either develop this system ourselves or outsource it. Ownership of the IP provides us flexibility with whom, what portions of, and when the system can be outsourced.

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10. Is it planned to use the invention in a Nokia product? If so, when and in which product? Is the invention standard related? Advanced Test Concept – DCT5 Production Test Methodology 4Q2002

11. Abbreviations

AI – Artificial Intelligence.
ATE – Automated Test Equipment. A chassis populated with instruments, controlled by a computer, which controls various measurements and tests on a DUT, and records results.
ANN – Artificial Neural Network: a computer model composed of a large number of interconnected, interacting, processing elements organized into layers. Mimics behavior of human nervous system at the neuronic level. ANN reasoning is associative in nature.
DUT - Device Under Test: In terms of Nokia production a PCB, radio module, or handset depending on the point of assembly.
ES – Expert System: A problem solving and decision making system based on knowledge of its task and logical rules and procedures for using the knowledge. Knowledge and logic are codified from the experience of human specialists in the field. ES reasoning is cognitive and rule-based in nature.
ESN – Electronic Serial Number.
TDC – Technology Development Center: Manufacturing Solutions (Americas) Diplomacy road Headquarters.
MCS – Master Control System
NPIA – New Product Integration Area: In the TDC.

12. Any further comments

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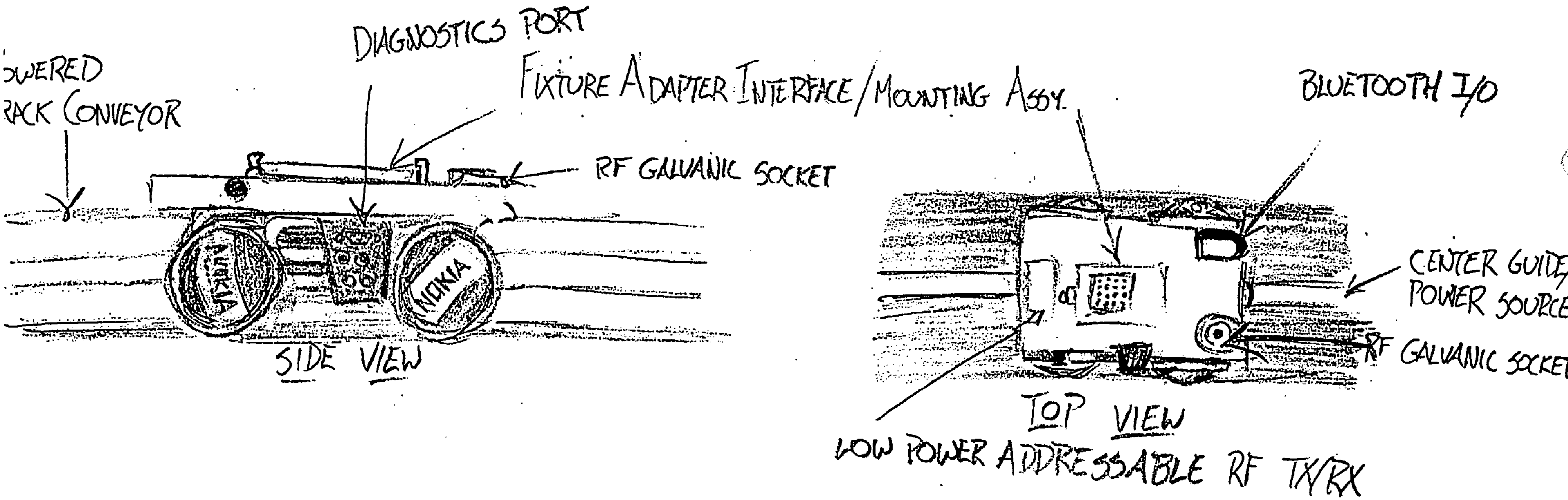
FIXTURE ASSY CONCEPT



xture Adapter mounts
fixture. Fixture provides
er, Communications to MCS,
remote sensors.
pter is modified
duct to product.

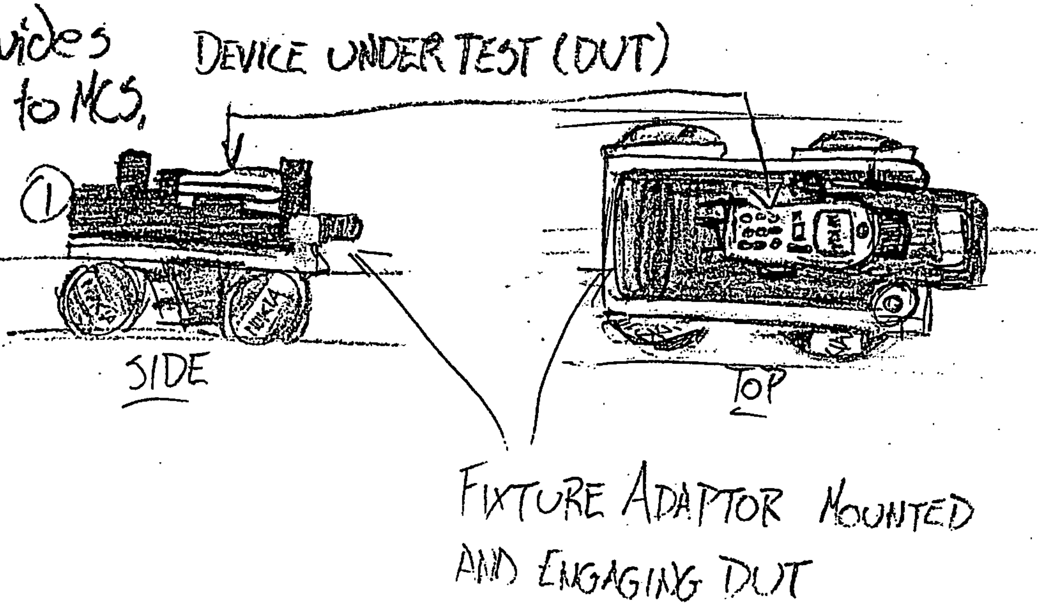
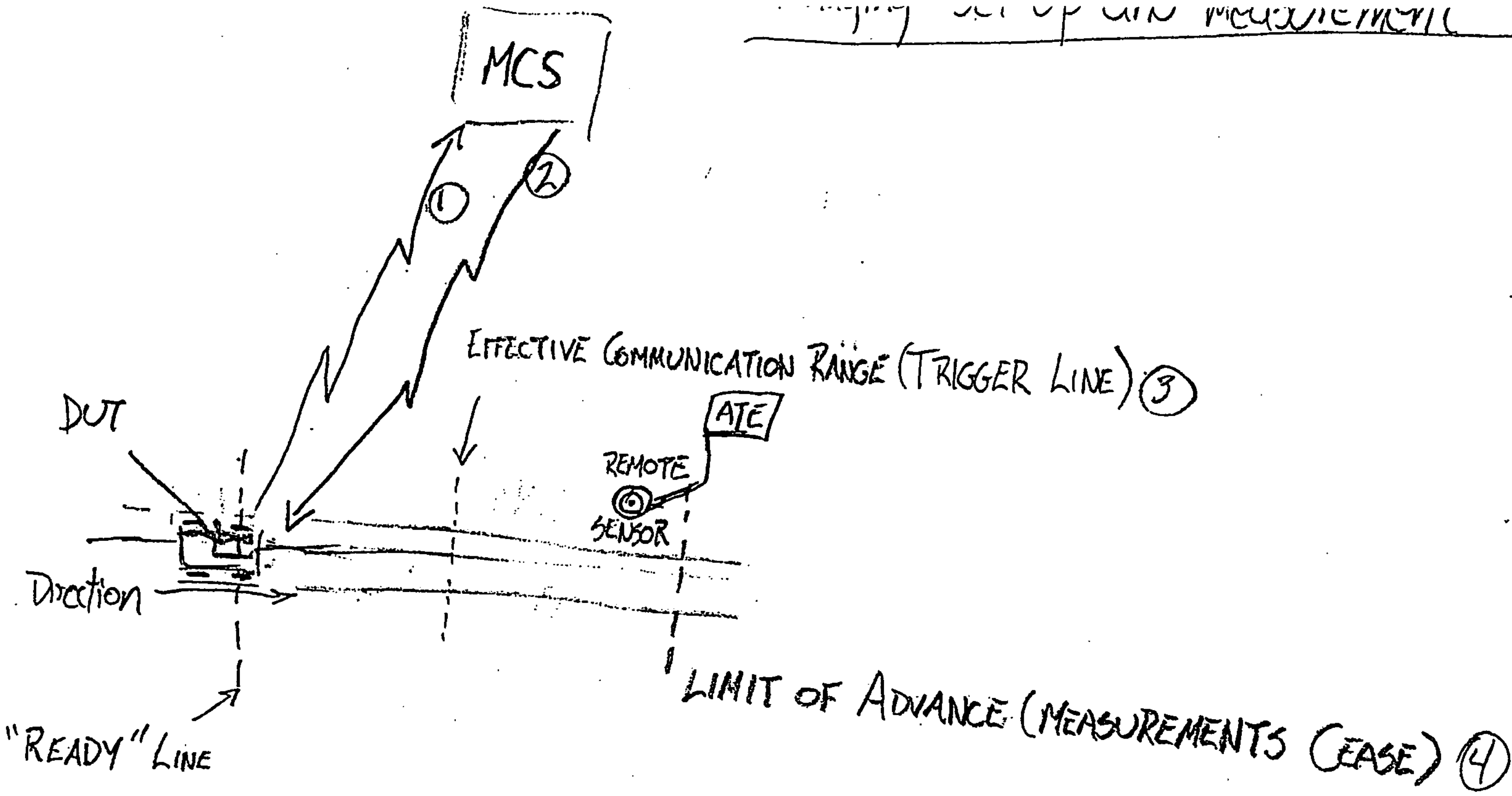


Figure 1

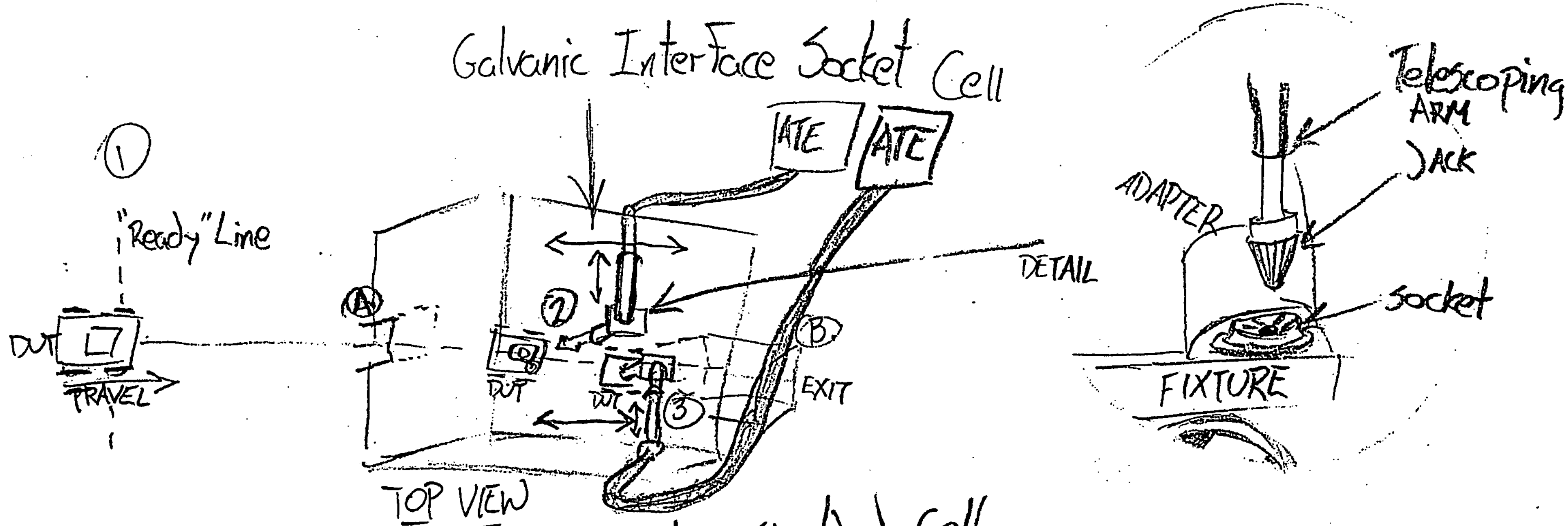
"...ing set up and measurement windows"



1. Cross "Ready" Line and report to MCS.
2. MCS directs actions to set up measurement conditions in time to begin once crossing the trigger line.
3. Automatically begin measurements at Trigger line, report results to MCS and continue to advance.
4. ATE resets and begins testing next DUT.

Figure 2

Managing set-up window and actions in KF cell



A. Door opens, DUT Enters Shielded Cell.
1. Same set up procedures as figure 2.
2. Robot Arm tracks and interfaces socket
3. Moves with DUT to Limit of Advance, extracts and resets

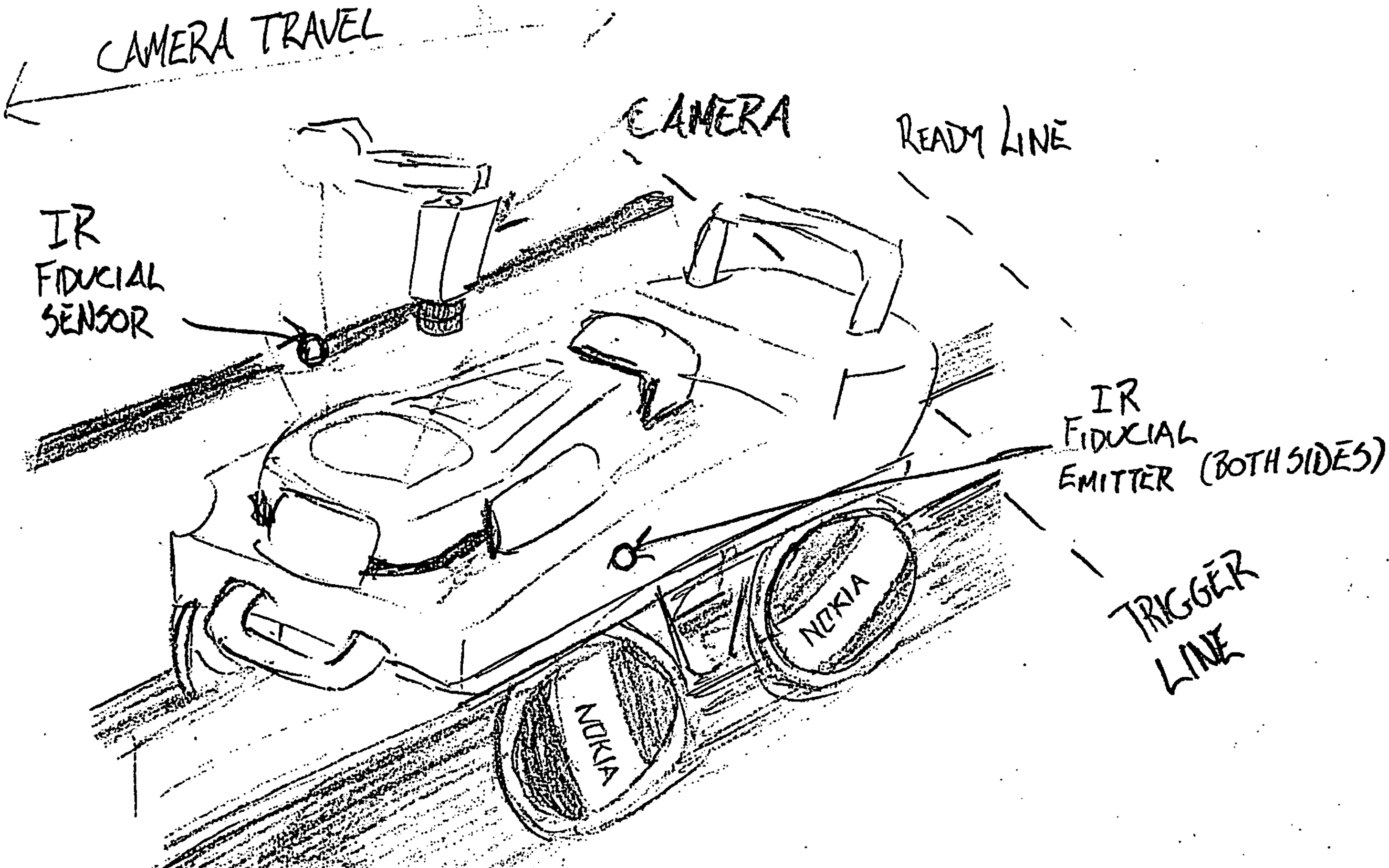
B. Door opens, DUT Exits, continue to advance.

NOTE: A, B, 2, and 3 occur in unison

Figure 3

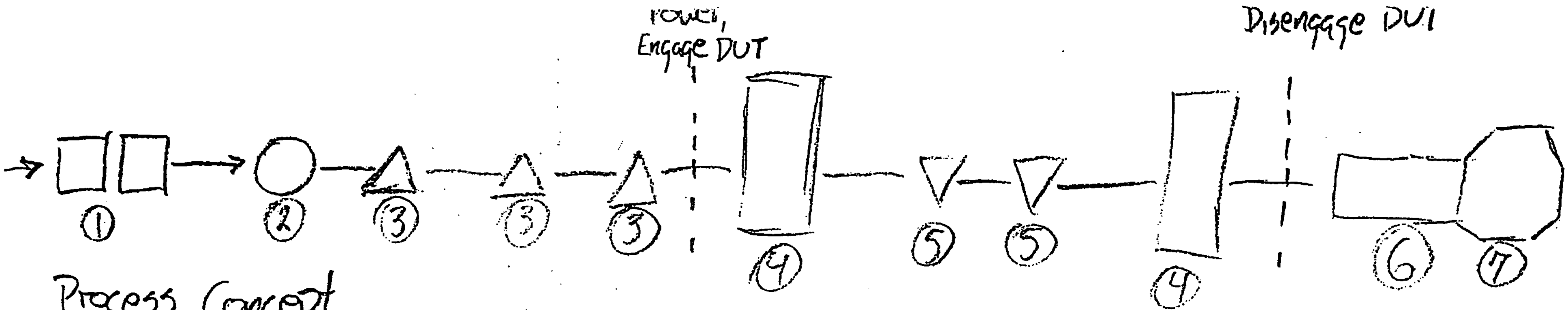
CAMERA INJECTION OF DISPLAY (KEYPRESS)

(REPLACING/AUGMENTING CAMERA FOR ELECTRO-SOLENOID KEY PRESS UNIT ALLOWS U/I ACTUATOR VERIFICATION)



FORWARD OBLIQUE VIEW

FIGURE 4



Process Concept

1. Multi-Panel Flash/Built-in Self-Test/Boundary Scan
2. Route and place PCB in base handset chassis. MCS command link established with Fixture
3. Camera verified assembly (U/I module, key pads, display)
4. Galvanic Interface (Baseband) tuning/Alignment/verification; RF tuning/certification/ESN)
5. Wireless distributed testing and measurements (voltages/audio/I/O presence and certification)
6. laser "branding" or physical label/co-label
7. Package/ship

Figure 5